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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,379	10/23/2006	Kazuaki Yazawa	545/98	8306

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EXAMINER	
HOFFBERG, ROBERT JOSEPH	

ART UNIT	PAPER NUMBER
2835	

MAIL DATE	DELIVERY MODE
01/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/587,379	YAZAWA, KAZUAKI	
	Examiner	Art Unit	
	Robert J. Hoffberg	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *9,11 and 13* is/are withdrawn from consideration.

5)☒ Claim(s) *10,12 and 14* is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/26/06 10/23/06 12/28/06 8/9/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-8, 10, 12 and 14) in the reply filed on 12/6/07 is acknowledged.

Specification

2. The disclosure is objected to because of the following informalities:

a. page 7, line 20, "gas" should be "fluid"; and

b. page 18, line 11, "delvers" should be "delivers".

Appropriate correction is required.

Claim Objections

3. Claims 1-8 are objected to because of the following informalities: "an auxiliary cooling unit ... to face a surface" (claim 1). Is "a surface" the same as "a primary cool unit ... to face a surface" or is it a second surface? For examination purposes, "a surface" can be the same or a different surface. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The term "close proximity" in claims 1 and 7-8 is a relative term which renders the claim indefinite. The term "close proximity" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the

invention. Figure 1 shows a "forced flow by fan" without disclosing the relative location of the primary cooling unit to the electronic device.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Severson et al. (US 5,474,120).

With respect to Claim 1, Severson et al. teach an electronic device cooling apparatus comprising: a primary cooling unit (Fig. 5, 51 and airflow "J") which is disposed in close proximity with an electronic device (62) so as to face a surface (62 top) thereof; an auxiliary cooling unit (69 and airflow "I") which is disposed in close proximity with the electronic device so as to face a surface (62 top) thereof; and a controller (82) which drives the auxiliary cooling unit so as to cool the electronic device.

With respect to Claims 2-3, Severson et al. further teach the primary cooling unit (51, constant source) is based on a cooling mechanism different from that of the auxiliary cooling unit (69 temporary source) (claim 2), the cooling capacity of the

auxiliary cooling unit per unit time is higher than that of the primary cooling unit (Col. 4, lines 62-65) (claim 3).

7. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondon et al. (US 5,361,188).

With respect to Claim 1, Severson et al. teach an electronic device cooling apparatus comprising: a primary cooling unit (Fig. 1, 13) which is disposed in close proximity with an electronic device (7) so as to face a surface (7 side) thereof; an auxiliary cooling unit (3) which is disposed in close proximity with the electronic device so as to face a surface (7 top) thereof; and a controller (Col. 2, line 56) which drives the auxiliary cooling unit so as to cool the electronic device.

With respect to Claim 4, Kondon et al. further teach the auxiliary cooling unit faces a surface (7 top) of the electronic device different from a surface (7 side) that the primary cooling unit faces.

8. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Beitelmal et al. (US 6,904,968).

With respect to Claim 1, Beitelmal et al. teach an electronic device cooling apparatus comprising: a primary cooling unit (Fig. 2, 14 left side & 18 upper-left), which is disposed in close proximity with an electronic device (48 upper-right) so as to face a surface (48 left side) thereof; an auxiliary cooling unit (14 right side & 18 upper-right) which is disposed in close proximity with the electronic device so as to face a surface (48 top) thereof; and a controller (44) which drives the auxiliary cooling unit so as to cool the electronic device.

With respect to Claims 4-5, Beitelmal et al. further teach the auxiliary cooling unit faces a surface (48 top) of the electronic device different from a surface (48 side) that the primary cooling unit faces.(claim 4) and the auxiliary cooling unit is provided with a cooling nozzle (18), and the controller controls (Col. 7, lines 19-21) a coolant (Col. 7, line 21) introduced in the cooling nozzle and drives the auxiliary cooling unit by delivering a jet (Col. 1, line 10) of coolant from the cooling nozzle (claim 5).

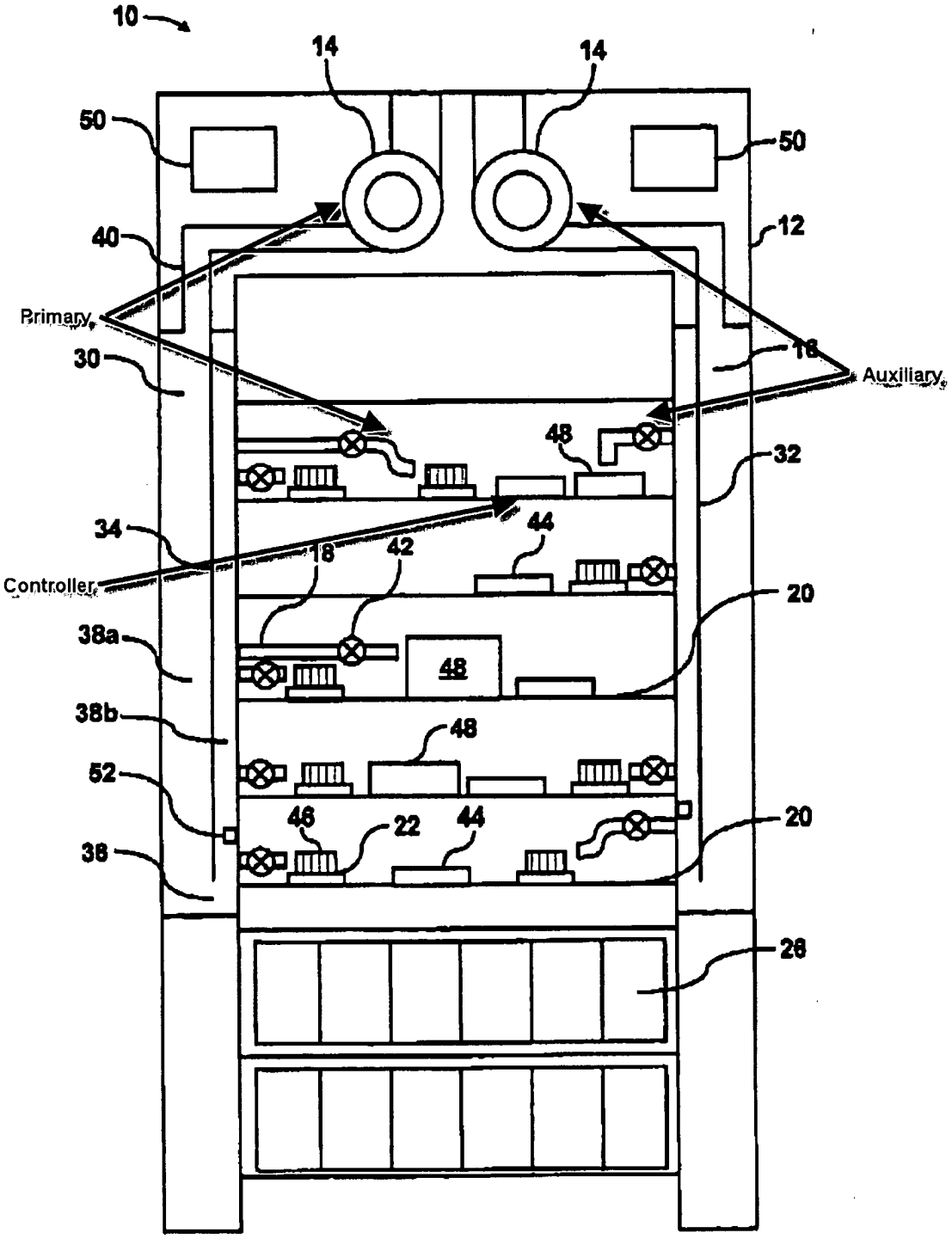
10
14
14
50
50
12
40
Primary
16
Auxiliary
30
48
32
34
44
18
42
Controller
20
38a
48
38b
48
52
46
22
44
20
38
28

FIG. 2

Allowable Subject Matter

9. Claims 10, 12 and 14 are allowed.

10. Claim 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and claim objection, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. Claims 7-8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and claim objection set forth in this Office action.

12. The following is a statement of reasons for the indication of allowable subject matter: Claim 6 is allowable over the art of record because the prior art does not teach or suggest that an electronic device, a controller, primary cooling unit, an auxiliary cooling unit and a temperature measuring unit wherein when *a rise in the measured temperature per unit time exceeds a predetermined threshold value*, the controller drives the auxiliary cooling unit to cool the electronic device. Claims 7-8 are allowable over the art of record because the prior art does not teach or suggest that an electronic device, a controller, primary cooling unit or heat dissipating mechanism facing a first surface of the electronic device, an auxiliary cooling unit delivering a jet of coolant *through a hole provided in a substrate* that faces a second surface of the electronic device. Claims 10, 12 and 14 are allowable over the art of record because the prior art does not teach or suggest that a measuring module, a first determining module, a first cooling module, a second determining module *which determines whether a rise in the temperature of the surface of the electronic device per unit time exceeds a second*

predetermined threshold value as a result of time variation; and a second cooling module. The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render said claims 6-8, 10, 12 and 14 patentable over art of record.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yazawa et al. (US 7,1657,778) is a related invention by the same assignee. Ohki et al. (US 6,735,499) at col. 7, lines 11-15 disclose a cooling system controlled wherein the cooling capacity is controlled based upon the temperature change as a result of time variation. Law et al. (US 7,017,059) at Col. 9, lines 42-47 and May et al. (US 6,255,622) at Col. 5, lines 46-67 disclose that the operation of an electronic device is controlled based upon the temperature change as a result of time variation. Andersen et al. (US 2007/0153474) disclose a controller, a primary cooling system and an auxiliary cooling unit, wherein auxiliary cooling unit delivering a jet of coolant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached on (571) 272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MICHAEL DATSKOVSKIY
PRIMARY EXAMINER

RJH 12/31/07